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	TICUT AVENUE, N.	HOANG, SON T		
SUITE 400 WASHINGTON, DC 20036			ART UNIT	PAPER NUMBER
			2165	
			NOTIFICATION DATE	DELIVERY MODE
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# Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)					
	10/559,386	SURAKKA ET AL.					
Office Action Summary	Examiner	Art Unit					
	SON T. HOANG	2165					
The MAILING DATE of this communication app Period for Reply	ears on the cover sheet with the c	orrespondence add	ress				
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).							
Status							
1) Responsive to communication(s) filed on 16 Ap	oril 2010.						
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· <del>=</del>							
closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.							
Disposition of Claims							
4)⊠ Claim(s) <u>1-5 and 7-31</u> is/are pending in the app	olication.						
4a) Of the above claim(s) is/are withdrawn from consideration.							
5) Claim(s) is/are allowed.							
6)⊠ Claim(s) <u>1-5 and 7-31</u> is/are rejected.	· · · · · · · · · · · · · · · · · ·						
7) Claim(s) is/are objected to.							
· ·	· <u> </u>						
Application Papers	·						
9) The specification is objected to by the Examiner.							
10)⊠ The drawing(s) filed on <u>06 December 2005</u> is/are: a)⊠ accepted or b)⊡ objected to by the Examiner.							
Applicant may not request that any objection to the c							
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).							
11) I he oath or declaration is objected to by the Exa	11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.						
Priority under 35 U.S.C. § 119							
<ul> <li>12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).</li> <li>a) All b) Some * c) None of:</li> <li>1. Certified copies of the priority documents have been received.</li> <li>2. Certified copies of the priority documents have been received in Application No</li> <li>3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</li> <li>* See the attached detailed Office action for a list of the certified copies not received.</li> </ul>							
Attachment(s)	_						
1) Notice of References Cited (PTO-892)	4) ☐ Interview Summary Paper No(s)/Mail Da						
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO/SB/08)	5) Notice of Informal P 6) Other:						
Paper No(s)/Mail Date	o) 🗀 Other						

#### **DETAILED ACTION**

### Response to Amendment

1. This communication is in response to the amendment filed on April 16, 2010.

Claims 1, 5-7, 10-12, 17, 21, 24-26, 28-29, and 31 are amended.

Claim 6 is canceled.

Claims 1-5, and 7-31 are pending.

# Response to Arguments

- 2. In response to the arguments received on April 16, 2010:
  - a. Objections to **claims 7-12**, **21**, **25**, **29**, and **31** are withdrawn in view of Applicant's amendment.
  - b. Applicant's arguments with respect to the 35 U.S.C. 103(a) rejections of the pending claims have been fully but are moot in view of the new grounds of rejections presented hereon.

It is noted that the fact that <u>Borkovsky</u> teaches searching for documents from different sources such as Internet searches does not distinguish from Applicant's invention of searching for counterparts of a data record in a reference data set since the claimed language does not restrict such searches to be done within an Internet environment. The claimed language itself does not provide or limit a definition of "for finding a counterpart", hence, "finding a counterpart" is interpreted merely as a searching and retrieval process

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## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 3. Claims 1-2, 5, 7, 13-14, 16-19, and 21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borkovsky et al. (Pat. No. US 7,440,941, filed on February 10, 2003; hereinafter Borkovsky) in view of Rogson (Pub. No. US 2002/0010726, published on January 24, 2002).

Regarding claims 1, 24, 26, and 29, Borkovsky clearly shows and discloses a method for tolerating writing variations in input data when processing a data record for finding a counterpart in a reference data set (*Abstract*), a computer program embodied in a computer-readable record medium, the computer-readable record medium including program instructions for causing a computer to perform a method for processing a data record for finding a counterpart in a reference data set (*Figure 10*), a data processing system comprising a processor for tolerating writing variations in input data when processing data records for finding counterparts in a reference data set (*Figure 10*), a data processing apparatus, comprising at least one processor configured to tolerate writing variations in input data when processing data records for finding counterparts in a reference data set (*Figure 10*), each of the computer program, system, or apparatus is implemented to carry out the method comprising the steps of:

determining, by a processor, a value of a data field, the data field representing an identifier (*The request is to search for files that match a search query. The request may* be to search for files that contain several specific words, [Column 3, Lines 47-50]),

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determining from a set of predetermined identifier values at least one synonym candidate for the value of the data field using a candidate selection criterion (*The set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings*, [Column 4, Lines 2-11]).

determining if a synonym candidate and the value of the data field fulfill a predetermined synonym acceptance criterion based on at least one quality parameter (Based on a set of one or more rules that weigh the frequency of occurrences of files that contain the particular spelling against the frequency of occurrences of files that contain the alternative spelling, it is determined whether to present the alternative spelling to a user, [Column 6, Lines 36-45]), and

when the predetermined synonym acceptance criterion is fulfilled, associating the value of the data field and the synonym candidate as synonyms before searching for a counterpart (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]),

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searching for the counterpart for the data record by comparing the value of the data field to entries of the reference data set and/or the synonym set after the step of determining if the predetermined synonym acceptance criterion is fulfilled (*The alternative spelling may then be presented to the user who submitted the original request, to allow the user to perform a modified search based on the alternative spelling*, [Column 2, Lines 33-36]), wherein if the synonym set was updated, said comparison to the synonym set comprises comparison to the updated synonym set in the computer readable database (*the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings*, [Column 11, Lines 54-55]. *The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file*, [Column 11, Lines 62-65]. *It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file*).

### Rogson discloses:

the data field is from a record (automatically recognizing a misspelled word from a spreadsheet, [0024]);

automatically updating a synonym set representing known writing variations for the identifier in a computer readable database by adding the value of the data field to the synonym set without intervention of a user and referencing to respective entries in the reference data set (Figure 8 shows dynamic update 535 adds the misspelled word and its correction for future reference, [0026]);

said at least one quality parameter takes into account writing variations that are evaluated based on differences in the value of the data field and the synonym candidate (the pair consisting of misspelled word "copmany" and the correct spelling "company" should now be added to static update list, [0032]).

It would have been obvious to an ordinary person skilled in the art at the time of the invention was made to incorporate the teachings of <u>Rogson</u> with the teachings of <u>Borkovsky</u> for the purpose of checking for spelling errors within a document by using a dynamic update list to capture both the misspelled word and the correct word ([Abstract] of <u>Rogson</u>).

Regarding **claim 2**, <u>Borkovsky</u> further discloses the at least one synonym candidate is determined using a candidate selection criterion depending at least on the value of the data field and on a synonym candidate (the set of candidate alternative spellings may include spellings that were determined, based on a set of rules and other determinations such as those described above, to be alternative spellings that could be presented to a user, [Column 4, Lines 2-11])).

Regarding **claim 5**, <u>Borkovsky</u> further discloses the candidate selection criterion takes into account also a further data field of the data record, said further data field representing a second identifier (*a search engine could receive a search request for "Abraham Lincon*", [Column 11, Lines 55-56]).

Regarding **claim 7**, <u>Rogson</u> further discloses at least one quality parameter takes into account <u>at least</u> one of the following quantities: a number of changes required for converting the value of the data field to be identical to a synonym candidate; a proportion of identical characters in the value of the data field and in a synonym candidate; and a difference between the length of the value of the data field and the length of a synonym candidate (*the pair consisting of misspelled word "copmany" and the correct spelling "company" should now be added to static update list, [0032]).* 

Regarding claim 13, Borkovsky further discloses a method, wherein the search for the counterpart involves comparison of the value of the data field to a synonym set relating to the identifier, members of said synonym set referring to respective predetermined identifier values, and when the predetermined synonym acceptance criterion is fulfilled, the value of the data field is added to the synonym set as a member referring to the synonym associated with the value of the data field before the search for the counterpart (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

Regarding **claim 14**, <u>Borkovsky</u> further discloses wherein determining the at least one synonym candidate is discarded, if a predetermined discard criterion is fulfilled (*Figures 9A-9B*).

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Regarding **claim 16**, <u>Borkovsky</u> further discloses the search for the counterpart involves the synonym set and the predetermined discard criterion specifies that the value of the data field is at least one of the following: one of the predetermined identifier values, and a member of the synonym set (*the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings*, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

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Regarding **claim 17**, <u>Borkovsky</u> further discloses the predetermined discard criterion takes into account a value of a second data field in the data record (*a search engine could receive a search request for "Abram Lincon"*, [Column 11, Lines 56-57]).

Regarding **claim 18**, <u>Borkovsky</u> further discloses information indicating the at least one synonym associated with the value of the data field is added to the data record (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

Regarding **claim 19**, <u>Borkovsky</u> further discloses a method, wherein a copy of the data record is made for each synonym associated with the value of the data field (searches for sets of multiple spellings may be performed, [Column 12, Lines 54-55]).

Regarding claims 21, 25, 28, and 31, Borkovsky clearly shows and discloses a method of updating a synonym set stored in a computer readable database to tolerate writing variation in input data when the synonym set is used in searching for counterparts for data records, wherein a data field representing an identifier, and members of the synonym set are first identifier values referring to respective second identifier values, the second identifier values being predetermined identifier values (Abstract), a computer-readable record medium having stored thereon computer-executable instructions for causing a computer to perform said method (Figure 10), a data processing system comprising a processor configured to perform said method (Figure 10), a data processing apparatus comprising a processor to perform said method (Figure 10), the method comprising the steps of:

determining, by a processor, among the predetermined identifier values at least one synonym candidate relating to the value of the data field using a candidate detection criterion (*The set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings*, [Column 4, Lines 2-11]), and

determining if the value of the data field and a synonym candidate fulfill a predetermined synonym acceptance criterion based on at least one quality parameter

(Based on a set of one or more rules that weigh the frequency of occurrences of files that contain the particular spelling against the frequency of occurrences of files that contain the alternative spelling, it is determined whether to present the alternative spelling to a user, [Column 6, Lines 36-45]);

when the predetermined synonym acceptance criterion is fulfilled, associating the value of the data field and the synonym candidate as synonyms before searching for a counterpart (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65])

### Rogson discloses:

the data field is from a record (automatically recognizing a misspelled word from a spreadsheet, [0024]);

when the predetermining synonym acceptance criterion is fulfilled, automatically adding the value of the data field to the synonym set in the computer readable database as a member referring to the synonym candidate without intervention of a user (*Figure 8 shows dynamic update 535 adds the misspelled word and its correction for future reference*, [0026]);

said at least one quality parameter takes into account writing variations that are evaluated based on differences in the value of the data field and the synonym candidate

(the pair consisting of misspelled word "copmany" and the correct spelling "company" should now be added to static update list, [0032]).

It would have been obvious to an ordinary person skilled in the art at the time of the invention was made to incorporate the teachings of <u>Rogson</u> with the teachings of <u>Borkovsky</u> for the purpose of checking for spelling errors within a document by using a dynamic update list to capture both the misspelled word and the correct word ([Abstract] of <u>Rogson</u>).

Regarding claim 22, Borkovsky further discloses the synonym set is empty before adding the value of the data field to the synonym set (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

Regarding **claim 23**, <u>Borkovsky</u> further discloses a method, wherein the synonym set contains at least one member before adding the value of the data field to the synonym set (*the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the* 

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dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

Regarding claim 27, Borkovsky further discloses:

means for storing a synonym set, members of said synonym set referring to respective predetermined identifier values, wherein the means for associating values of the data field and respective predetermined identifier values as synonyms are configured to add to the synonym set a member referring to the synonym associated with the value of the data field before activation of the means for searching counterparts (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

Regarding **claim 30**, <u>Borkovsky</u> further discloses members of said synonym set referring to respective predetermined identifier values, and wherein the at least one processor is configured to add to the synonym set stored in the at least one memory a member referring to the synonym associated with the value of the data field before activation of the search for counterparts (the set of candidate alternative spellings may include spellings that were selected by a spelling checking routine and/or a routine that selects synonyms of received spellings, [Column 11, Lines 54-55]. The search engine

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may confidently add the spelling "Lincoln" to the dictionary file and omit the spelling "Lincon" from the dictionary file, [Column 11, Lines 62-65]. It is quite inherent that later searches with similar input query would then also be compared with the newly updated dictionary file).

4. Claims 3-4, 9, 15, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borkovsky in view of Rogson, and further in view of Toner et al. (*Pub. No. US 2004/0024760*, filed on July 31, 2002; hereinafter Toner).

Regarding **claim 3**, <u>Borkovsky</u>, as modified by <u>Rogson</u>, does not disclose the candidate selection criterion takes into account how similar a synonym candidate and the value of the data field sound.

However, <u>Toner</u> discloses the candidate selection criterion takes into account how similar a synonym candidate and the value of the data field sound (*The rules* employed take into account the original sounds or pronunciations of the letters, eliminating double letters, and looking for special patterns, [0062]).

It would have been obvious to an ordinary person skilled in the art at the time of the invention was made to incorporate the teachings of <u>Toner</u> with the teachings of <u>Borkovsky</u>, as modified by <u>Rogson</u>, for the purpose of resolving variations in spellings and representations for names with foreign origins that may be spelt in any number of ways ([0015] of Toner).

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Regarding **claim 4**, <u>Toner</u> further discloses the candidate selection criterion specifies that at least a predetermined part of the value of the data field is identical to a predetermined part of a synonym candidate (*a probabilistic search algorithm is used that matches strings according to the length and number of string fragments shared by the two strings, [0062]).* 

Regarding **claim 9**, <u>Toner</u> further discloses the proportion of identical characters takes into account the order of the characters (*a probabilistic search algorithm is used that matches strings according to the length and number of string fragments shared by the two strings*, [0062]).

Regarding **claim 15**, <u>Toner</u> further discloses the predetermined discard criterion specifies that the value of the data field is identical to one of the predetermined identifier values (see the example of permutation process of name components in Figure 6).

Regarding **claim 20**, <u>Toner</u> further discloses a method, wherein the identifier relates to a name of one of the following: a geographical entity, a person and an organization (*compare the search query with the Name Database*, [0030]).

5. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Borkovsky, in view of Rogson, and further in view of Bellany et al. (*Pub. No. US* 2002/0078024, filed on October 12, 2001; hereinafter Bellany).

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Regarding **claim 8**, <u>Borkovsky</u>, as modified by <u>Rogson</u>, does not disclose the number of changes required for converting the value of the data field to be identical to a synonym candidate is calculated using the Levenshtein distance.

However, <u>Bellany</u> discloses the number of changes required for converting the value of the data field to be identical to a synonym candidate is calculated using the Levenshtein distance (*The quality of correspondence between two terms may be judged by calculating the "Levenshtein" distance between the two strings*, [0044]).

It would have been obvious to a person with ordinary skills in the art at the time of the invention to incorporate the teachings of <u>Bellany</u> with the teachings of <u>Borkovsky</u>, as modified by <u>Rogson</u>, for the purpose of retrieving a desired postal address from a plurality of postal addresses by searching a dictionary for entries in the dictionary corresponding to the searched terms ([Abstract] of <u>Bellany</u>).

6. **Claims 10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Borkovsky in view of Rogson, and further in view of Murakami et al. (*Pub. No. US* 2004/0181759, filed on July, 19, 2002; hereinafter Murakami).

Regarding **claim 10**, <u>Borkovsky</u>, as modified by <u>Rogson</u>, does not explicitly disclose a first quality parameter is evaluated for each synonym candidate and at least a second quality parameter is evaluated at least for the synonym candidate(s) having the best first quality parameter.

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However, Murakami further discloses a first quality parameter is evaluated for each synonym candidate and at least a second quality parameter is evaluated at least for the synonym candidate(s) having the best first quality parameter (generating at least one second set of candidate synonyms for the object word, based on at least one part of the document data and narrowing the candidate synonyms contained in the first set using the candidate synonyms contained in the second set, [0016]).

It would have been obvious to a person with ordinary skills in the art at the time of the invention to incorporate the teachings of <a href="Murakami"><u>Murakami</u></a> with the teachings of <a href="Murakami"><u>Borkovsky</u></a>, as modified by <a href="Rogson">Rogson</a>, for the purpose of generating the candidate synonyms more efficiently by handling all abbreviations and peculiar terms including misspelled or misconverted words ([0015] of Murakami).

Regarding **claim 11**, <u>Murakami</u> further discloses the synonym acceptance criterion requires that there is only one synonym candidate having the best at least one quality parameter (*Table 1 shows that the firstly ranked candidate "batt" has the highest degree of relatedness*, [0055]).

Regarding **claim 12**, <u>Murakami</u> further discloses a method, wherein at least two quality parameters are evaluated for each synonym candidate and the synonym candidate acceptance criterion specifies a threshold for one of the at least two quality parameters, the threshold being dependent on a further one of the at least two quality parameters (*generating first and second sets of candidate synonyms for the object* 

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word, [0016]. The candidates which are ranked in places equal to or higher than a threshold value place in the second sets are evaluated to be "absolute," [0021]).

### Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### **Contact Information**

8. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Son T. Hoang whose telephone number is (571) 270-1752. The Examiner can normally be reached on Monday – Friday (7:00 AM – 4:00 PM).

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Neveen Abel-Jalil can be reached on (571) 272-4074. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. T. H./ Examiner, Art Unit 2165 May 19, 2010

/Neveen Abel-Jalil/ Supervisory Patent Examiner, Art Unit 2165